

METHOD OF BUILDING GOOD ROADS

SAND ROADS CAN BE MADE SMOOTH AS PAVEMENT BY APPLICATION OF OIL WITH ASPHALT BASE—METHOD OF MAKING.

Manager John H. Whyte of the Chamber of Commerce has received the following reply to his inquiry regarding the best methods of road building, from Hutton & Son, of Los Angeles, who have been very successful with their process of making sand roads:

"LOS ANGELES, Cal., Dec. 6, 1907.
—John H. Whyte, Astoria, Ore.:

"Dear Sir:—We are in receipt of your letter of inquiry, dated Dec. 3rd, concerning the oiling of roads. We have no printed matter on this subject, but enclose some newspaper clippings that will give you some of our former methods of using oil on earth roads. We also enclose a picture of the tamping machine that we use.

"We have just completed a road for the County of Los Angeles, known as the Huntington Boulevard, and I give you herewith the specifications under which we worked. As this has given the best results that we have yet succeeded in obtaining in our three years experience, we would advise you to use it should you attempt to make any such roadway.

"The roadway being brought to grade and shaped up with the road grader is then plowed up to a depth of six or seven inches and thoroughly pulverized so that there are no large lumps of earth or clay remaining. The oil is then applied to the amount of one gallon to the square yard which is immediately cultivated under with a cultivating machine and thoroughly mixed, then another gallon of oil to the yard is spread over the surface and thoroughly cultivated down to the depth of four or five inches. The road grader is then used for shaping the roadway and two inches, or better three inches of screened gravel, nothing larger than will pass through a two inch ring and from that down to the size of a pea, is spread over the surface and again shaped up with the road grader, then one gallon of oil to the yard is spread.

and the gravel and oily soil down to the depth of five inches is thoroughly mixed with a cultivator until every particle of earth is coated with oil. Then the tamping machine is put on and the whole tamped until it gives a uniform smooth and hard surface. The action of the tamping machine is not the same as a roller as the teeth which are about seven inches long with a face of about four square inches, push through the bituminized earth down to the original foundation, building up until the teeth of the tamper have entirely pressed the bituminized material into a solid mass. The tampers we have weigh about three tons and each tooth has a bearing of something like five hundred pounds to the linear inch which insures a thoroughly compact mass without any weak places in it.

"The oil we use has an asphalt base and a specific gravity of about 1.28. We call for about 75 per cent or 80 per cent of what really is known as liquid asphalt. This we find gives the best results so far as our work has shown. Oils containing waxes such as Paraffine and Ozokerite have proven a failure in making these roads as the waxes do not get hard but will always be soft and therefore unsuitable. A mixture of coal tar with the asphaltic base serves admirably and in sections where the expense of bringing in the asphaltic oils would be too great, the addition of coal tar will probably make it possible to construct these roads cheaply.

"We have made these roads, in sand with about ten per cent of clay matter and gravel soils and so far have not made a single failure, although our first efforts do not approach in quality the roads we are making now. The essential part of making the roads in this way with this asphaltic oil is that every particle of soil is thoroughly mixed, and the better the mixture, the better the result. It is also necessary to change the amount of oil in some soils, gravel not taking as much as the clay soils, and where you get an excess of oil it is almost impossible to get the proper consistency to the road. In case this should occur we replot the whole and retamp it, thus bringing just enough of the soil from the bottom to take up the excess of oil. This vastly improves the road and makes it even better than it would be originally, and has given us the knowledge that in making repairs, should they be necessary after a number of years, that by ripping the entire street and adding a small proportion of oil, say one-quarter of a gallon to the

square yard, a far better street or road is obtained than it was originally.

"The cost of building a road with the gravel such as we suggest in this section is about four cents per square foot. To build the road without the use of gravel will average about two and one-half cents per square foot, oil being \$1.10 to \$1.25, spread on the street.

"The oil being of such great density it is necessary to heat it, which we do by injecting steam into the cars and raising the temperature to 200 degrees and pumping the same into the wagons and spreading immediately. If the oil gets below 130 degrees it is almost impossible to sprinkle it uniformly, and should it get cold it simply will not come out at all.

"The price of road oil f.o.b. tank cars here is now \$1.00 per barrel, which I think will be the price for the next year or so.

"Regarding the quality of road we have, we think we have evolved a road that is far superior to the ordinary macadam road, and which we are satisfied will sustain as much traffic with a minimum amount of repairs. The road has the appearance of an asphalt pavement, not quite so hard as the hardest of dirt roads with the same resilience.

"For automobile gravel there is nothing, and we can say this without contradiction, that touches it. There is practically no abrasion and it is as near dustless as a pavement can possibly be. "Trusting this information will be sufficient, we remain, Yours truly, S. Hutton & Son."

PERSONAL.

W. J. Warren, of Portland, is on a business trip to Astoria.

May C. Miller, of Duluth, Minn., is registered at the Occident.

G. M. Rosentel, of Portland, arrived on last night's train.

J. T. Healy, of Gray's River, was in Astoria yesterday.

John Takala was in from Rosburg, Wash., yesterday.

Wm. E. Baptiste, of the steamer Volga has been visiting in Astoria for a few days.

Aaron Lautta, who has been visiting in Portland, arrived on yesterday noon's train.

Mrs. Florence Westdahl and Mrs. Mary A. Strobbridge, of Oakland, Cal., arrived here today on the noon train and will visit with their mother, Mrs. C. Van Dusen, and relatives during the Christmas holidays.

Start the Bowels

When you suffer with sick headache, biliousness, torpid liver, tainted breath or stomach ills—start the bowels. Health demands that they move naturally at least once a day; otherwise poisons are thrown back into the blood and the whole body becomes a lodging place for disease. Keep the bowels open with

BEECHAM'S PILLS

when there is the slightest evidence of irregularity, and you will be free from the complaints caused by sluggish bowels or an inactive liver. The action of Beecham's Pills is gentle but thorough. Fifty-six years before the public, their wonderful success as liver and bowel correctives, has won first place for them as

Nature's Constipation Cure

In boxes with full directions, 10c. and 25c.

BLUE LAW SUNDAYS

(Continued from Page 3.)

works hard as a scavenger and a consumer of mosquitoes. Great care is always taken, however, by vessels loading there to exclude him from the cargo, as his society is not pleasant away from his native haunts, even though he outdoes the chameleon in changing colors. Just how the tjitjaks got aboard the vessel which brought them to New York is unknown, but get aboard they did in large numbers. Many were destroyed by the crew in the war of extermination which they waged. There were enough left, however, when the vessel they came on docked here to cause a small riot on the part of the long shore population in their efforts to secure the strange lizards whose name they could not pronounce. New Jersey hotel man, it is rumored, are going to investigate the mosquito eating propensities of the tjitjak with the idea of making practical use of him if he does not come in the "nature fake" class.

Whether the city is or is not a better place than the country for reaching boys is a question which is causing much discussion among local educators. A local minister of prominence has just opined that it is, stating the city boy has a better chance in his moral development than the country lad, finding his reason in the argument that the latter must put in so much time at being busy, that is, working on the farm, that there is not time left for his moral education such as going to church. This is a dis-

ting reversal of the popular opinion and remains as yet in the realm of theory. Statistics of the State Board of Charities, however, show beyond a doubt that the country is a much better place to reform the boy who has gotten a bad start. As a result of the Board's annual inspection, the New York Juvenile Asylum, located twenty miles out of the city and the first institution of its kind to adopt the cottage plan, has just been placed in the first class which means that it has attained the highest possible efficiency. But the same institution when located in its old home in the city amid the atmosphere which led to the undoing of the boys who are sent to it never stood higher than the third class. So whether the city or the country is the best place to rear the boy still remains an open question, New York's experience based on the results obtained at the Juvenile Asylum show that the country is by far the best place to reform him.

Interesting Announcement.

Mrs. M. E. Hawkes, the popular modiste, hereby announces that she has engaged the service of a first-class ladies' tailor and designer, Mr. N. Sherman, of New York, and is now prepared to fill all demands for tailored gowns. Mr. Sherman also makes a specialty of remodeling furs, and in all his work adheres to the latest fashions of New York and Paris. Prices moderate and all work guaranteed. Mrs. Hawkes will be pleased to meet new and old patrons in this behalf.

Sheriff Pomeroy was in Seaside yesterday.

DONE BY DEEDS.

L. A. Grimes and wife to Wm. E. Johns, lot 6, block 7, Bradbury's addition to Ocean Grove. \$375

Wm. S. Jones and wife to W. S. Henninger, lot 6, block 7, Bradbury's addition to Ocean Grove. \$1

Esther J. Evans and husband and Venla S. Cully to Harry Christian-son, lot 5, block 84, McClure's. \$1

NEW TO-DAY.

Columbia and Victor graphophones and latest records at 424 Commercial street. A. R. Cyrus. 424

Notice.

Door Mats, 50 cents each; Umbrella Vases, 75 cents each. You need them in this kind of weather. See Hildebrand & Gor.

New Grocery Store.

Try our own mixture of coffee—the J. P. B. Fresh fruit and vegetables. Babollet & Co. grocers. Phone Main 1231.

The Tyler.

The Tyler still keeps up its reputation. Good liquors and polite attention will always win, and in pursuance of this idea Clarence Tyler has made no change in the quality of his goods, and has secured the services of Uncle Gene Lent whose genial personality makes him popular with the Tyler's patrons. Everyone knows where the Tyler is, Sixth and Bond streets.

REPORT OF THE CONDITION OF THE

Astoria Nation Bank

at Astoria, in the State of Oregon, at the close of business, December 3, 1907.

RESOURCES.

Loans and discounts	\$428,212.26
Overdrafts, secured and unsecured	5,561.90
U. S. bonds to secure circulation	17,500.00
U. S. bonds to secure U. S. deposits	50,000.00
Premiums on U. S. bonds	2,875.00
Bonds, securities, etc.	62,147.48
Banking house, furniture, and fixtures	4,340.75
Other real estate owned	8,233.41
Due from National Banks (not reserve agents)	5,157.63
Due from State Banks and Bankers	17,226.00
Due from approved reserve agents	150,319.59
Checks and other cash items	2,547.82
Clearing house certificates	6,000.00
Notes of other National Banks	885.00
Fractional paper currency, nickels, and cents	1,280.27
Lawful Money Reserve in Bank viz:	
Specie	\$132,582
Legal-tender notes	17,065
Redemption fund with U. S. Treasurer (5 per cent circulation)	875.00
Total	\$913,509.17

LIABILITIES.

Capital stock paid in	\$50,000.00
Surplus fund	50,000.00
Undivided profits, less expenses and taxes paid	15,338.57
National Bank notes outstanding	17,500.00
Due to State Banks and Bankers	2,277.42
Due to approved reserve agents	996.39
Individual deposits subject to check	\$338,200.70
Demand certificates of deposit	\$58,049.75
Time certificates of deposit	\$330,966.34
Certified checks	180.00
U. S. deposits	50,000.00
Total	\$913,509.17

State of Oregon, County of Clatsop, ss.
I, J. E. Higgins, Cashier of the above-named bank, do solemnly swear that the above statement is true to the best of my knowledge and belief.

J. E. HIGGINS, Cashier.
Subscribed and sworn to before me this 6th day of December, 1907.

GEO. C. FULTON, Notary Public.

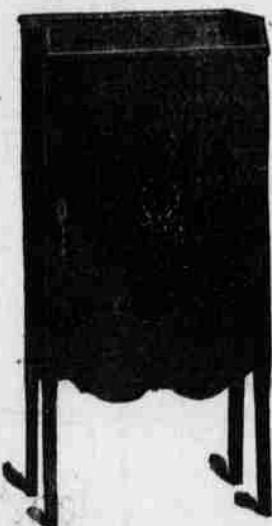
Correct—Attest:
GEO. H. GEORGE,
GEORGE W. WARREN,
L. MANSUR, Directors.

Announcement of Continuation of OUR DISCOUNT SALE

On account of the continuation of the Special Holidays we have decided to let our Discount Sale run all through the month of December, thereby giving CHRISTMAS SHOPPERS the Benefit of Extraordinary Values.

Music Cabinets

in Mahogany, Golden Oak and Walnut.



Special Holiday Prices,
\$7 to \$25

Parlor and Library Tables

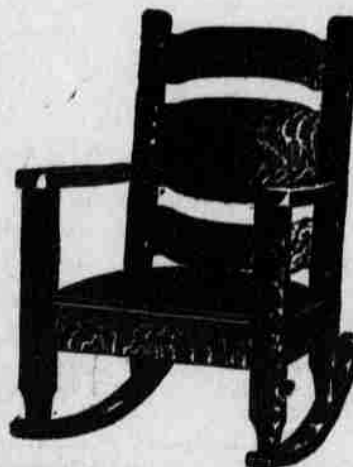
in Golden, Weathered and Fumed Oak.

Special Holiday Prices from
\$2 to \$25



Comfortable Rockers

in Golden, Weathered and Fumed Oak.



Special Holiday Prices,
\$2.75 to \$35

Brass Bedsteads

in Satin and Polet Finishes.

Special Holiday Prices from
\$37.50 to \$50

Morris Chairs and Rockers—

in all finishes.

Special Holiday Prices,
\$1 to \$6



Thirty-Two Years in Astoria.

Established in 1875.

Dressers & Chiffoniers

Golden Oak, Birdseye Maple, Mahogany, Circassian Walnut.

Special Holiday Prices,
\$8.50 to \$50



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A Shipment of Fine

"MISTLETOE"

Just loaded with berries come and select yours now.

Acme Grocery Co.

The Up-to-Date Grocers.

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